

**Notice of Allowability**

Application No.

10/084,503

Examiner

Thomas E. Shortledge

Applicant(s)

THYSSEN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Remarks, filed 01/09/2006.
2. ☒ The allowed claim(s) is/are 1-44.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

1. This communication is in response to Remarks, filed 01/09/2006.
2. Claims 1-44 are pending with claims 1, 6, 17, 23, 28 and 39 being independent.
3. The objection to claims 4, 5, 14-16, 21, 22, 26, 27, 36-38, 43 and 44 has been withdrawn in view of the applicants' arguments.

### ***Response to Arguments***

4. Applicant's arguments, see Remarks, filed 01/09/2006, with respect to claims 1-3, 6-13, 17-20, 23-25, 28-35 and 39-42 have been fully considered and are persuasive. The 35 U.S.C. 103 rejections have been withdrawn.

### ***Allowable Subject Matter***

5. Claims 1-44 are allowed.
6. The following is an examiner's statement of reasons for allowance:

As to claims 1 and 23, Marcellin et al. (A Trellis-Search 16 Kbit/Sec Speech Coder with Low Delay) teach a Noise Feedback Coding structure that uses Trellis Coded Quantization (TCQ) to quantize a prediction residual. Cuperman et al.

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(4,963,034) teach a coding structure that performs a Vector Quantizer (VQ) codebook search to code an input speech signal. Cuperman et al. further teaches decomposing vectors representing predicted speech (denoted  $y(n)$ ) and reconstructed speech (denoted  $z(n)$ ) into zero-input response and zero-state response components. Marcellin et al. in view of Cuperman et al. do not teach nor fairly suggest “[a] method of performing an efficient excitation quantization of a prediction residual signal using a codebook in a speech or audio noise feedback coding (NFC) system, the NFC system including at least one noise feedback loop” or “deriving N correlation values using the NFC system, each of the N correlation values corresponding to a respective one of the N VQ codevectors.” Further, Marcellin et al. in view of Cuperman et al. do not teach deriving energies associated with the zero-input response and zero-state response components.

As to claims 6 and 28, Cuperman et al. (4,963,034) teach a coding structure that performs a Vector Quantizer (VQ) codebook search to code an input speech signal. Cuperman et al. further teaches decomposing vectors representing predicted speech (denoted  $y(n)$ ) and reconstructed speech (denoted  $z(n)$ ) into zero-input response and zero-state response components. Moo (6,141,640) teaches a digital transmitter/receiver communication system that transmits audio voice signals over a channel. In Moo, error vectors  $J$  associated with encoding Line Spectral Frequency (LSF) coefficients are modeled by a number of vectors  $J_p$  having all positive components, and a sign vectors  $s$  indicating the polarity of each component of the

vector. An index  $I_p$  of the positive vector  $J_p$  and the sign vector  $s$  corresponding to vector  $J$  are transmitted, along with other audio information, to a receiver decoder.

Cuperman et al. in view of Moo do not teach nor fairly suggest the user of a codebook in which a "shape codevector" is associated with both a "positive codevector and a negative codevector." Further, the combination does not teach nor fairly suggest "deriving a first minimization value corresponding to the positive codevector associated with the one shape codevector when a sign of the correlation term is a first value" or "deriving a second minimization value corresponding to the negative codevector associated with the one shape codevector when the sign of the correlation term is a second value."

As to claims 17 and 39, Marcellin et al. teach a Noise Feedback Coding structure that uses Trellis Coded Quantization (TCQ) to quantize a prediction residual. Moo teaches a digital transmitter/receiver communication system that transmits audio voice signals over a channel. In Moo, error vectors  $J$  associated with encoding Line Spectral Frequency (LSF) coefficients are modeled by a number of vectors  $J_p$  having all positive components, and a sign vectors  $s$  indicating the polarity of each component of the vector. An index  $I_p$  of the positive vector  $J_p$  and the sign vector  $s$  corresponding to vector  $J$  are transmitted, along with other audio information, to a receiver decoder. Marcellin et al. in view of Moo do not teach nor fairly suggest "deriving a first minimization value corresponding to the positive codevector associated with the shape codevector when a sign of the correlation term is a first value" or "deriving a second

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minimization value corresponding to the negative codevector associated with the shape codevector when the sign of the correlation term is a second value.”

Claims 2-5, 7-15, 18-22, 24-27, 29-37 and 40-44 are allowed since they depend from the above allowable claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E. Shortledge whose telephone number is (571)272-7612. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TS  
03/20/2006



**RICHEMOND DORVIL**  
**SUPERVISORY PATENT EXAMINER**